

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference PHDE030416WO	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. PCT/IB2004/052671	International filing date ( <i>day/month/year</i> ) 06 December 2004 (06.12.2004)	Priority date ( <i>day/month/year</i> ) 15 December 2003 (15.12.2003)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant PHILIPS INTELLECTUAL PROPERTY & STANDARDS GMBH			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

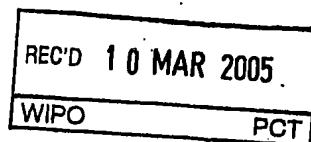
- |                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

		Date of issuance of this report 20 June 2006 (20.06.2006)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland		Authorized officer  Cecile Chatel
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# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY



## PCT

To:

see form PCT/ISA/220

### WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/IB2004/052671

International filing date (day/month/year)  
06.12.2004

Priority date (day/month/year)  
15.12.2003

International Patent Classification (IPC) or both national classification and IPC  
H03L7/087, H03L7/113

Applicant  
PHILIPS INTELLECTUAL PROPERTY & STANDARDS GMBH

**1. This opinion contains indications relating to the following items:**

- ☒ Box No. I Basils of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unilty of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

**2. FURTHER ACTION**

If a demand for International preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/IB2004/052671

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material:  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing:  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/IB2004/052671

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or  
Industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	1-16
	No: Claims	
Inventive step (IS)	Yes: Claims	2-6,9,11-14
	No: Claims	1,7,8,10,15,16
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**Re Item V.**

- 1 The following documents are referred to in this communication:
- D1 : WO 03/081779 A (GENESIS MICROCHIP INC; GRUSHIN, STANISLAV) 2 October 2003 (2003-10-02)
  - D2 : US 5 511 100 A (LUNDBERG ET AL) 23 April 1996 (1996-04-23)
  - D3 : US 2002/191727 A1 (STASZEWSKI ROBERT B ET AL) 19 December 2002 (2002-12-19)
  - D4 : US 6 353 647 B1 (WILHELMSSON MATS ET AL) 5 March 2002 (2002-03-05)

- 2 The application does not meet the requirements of Article 6 PCT, because claims 1-16 are not clear.

The features following the expressions "in particular", "can be fed", "may have" and "may...be" in more than one claim, are interpreted as entirely optional. Therefore they are not taken into consideration in the novelty and inventive step assessment.

**3 INDEPENDENT CLAIMS**

- 3.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject matter of claims 1, 10 and 16, as far as it can be understood (see point 2), does not involve an inventive step in the sense of Article 33(3)PCT.

Document D1, which is considered to represent the most relevant state of the art to the subject matter of claim 1, discloses (page 9, line 6- page 18, line 29; figure 8) a circuit arrangement having at least one phase locked loop (802, 803, 811, 819, 827), comprising

- at least one phase detector (803,812) for detecting phase information of at least one analog input signal (Ref\_frm), in particular following the arrival of at least one rising edge and/or falling edge of at least one analog input signal,
- at least one loop filter (814, 816, 818, 819), to which the output signal which is output by the phase detector can be fed, for determining at Least one increment (Freq\_val), and
- at least one ramp oscillator (827), to which the increment (Freq\_val) which is output

by the loop filter can be fed, wherein

- the phase locked Loop (802, 803, 811, 819, 827) is essentially digital and for this reason may have at least one time-to-digital converter, to which at least one system clock can be fed, for digitizing the input signal, in particular the phase of the input signal,
- the phase detector (803, 812) can be fed the output signal, in particular the additional phase information, of the time-to-digital converter and also at least a first output signal, in particular at least one status signal, of the ramp oscillator.

The subject-matter of independent claim 1 differs from the disclosure of D1 in that it discloses further at least one frequency detector.

The use of a frequency detector in a phase locked loop to accelerate the lock-in for instance, is obvious for the person skilled in the art, see document D2 for example. Therefore claim 1 cannot be considered inventive (Article 33(3) PCT).

- 3.2 Document D1, which is considered to represent the most relevant state of the art to the subject matter of claim 10, discloses (page 9, line 6- page 18, line 29; figure 8) a method of locking onto and/or processing data, in particular audio, t[ele]V[ision] and/or video data, by means of at least one phase locked loop, wherein
- phase information is detected by means of at least one phase detector (803, 812), in particular following the arrival of at least one rising edge and/or falling edge of at least one analog input signal,
  - at least one increment (Freq\_val) is determined by means of at least one loop filter (814,816,818,819), to which the output signal (diff) which is output by the phase detector (812) is fed, and
  - at least one ramp oscillator (827) is fed the increment (Freq\_val) which is output by the loop filter (814,816,818,819), wherein
  - the phase locked loop is essentially digital, wherein the input signal (Ref\_frm), in particular the phase of the input signal can be digitized by means of at least one time-to-digital converter, to which at least one system clock is fed,
  - the phase detector (812) is fed the output signal (Target\_val), in particular the additional phase information, of the time-to-digital converter (812) and also at least a

first output signal (Phase\_current), in particular at least one status signal, of the ramp oscillator (827), and

The subject-matter of independent claim 10 differs from the disclosure of D1 in that it discloses further at least one frequency detector outputting frequency information to the loop filter.

The use of a frequency detector in a phase locked loop to accelerate the lock-in for instance, is obvious for the person skilled in the art, see document D2 for example. Therefore claim 10 cannot be considered inventive (Article 33(3) PCT).

- 3.3 Claim 16 lacks inventive step because the circuit arrangement of the document D1 is used in many types of electrical systems (see page 1, second paragraph)

4 DEPENDENT CLAIMS 7, 8, 15

Dependent claims 7, 8, 15, do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

5 DEPENDENT CLAIMS 2-6, 9, 11-14

The combination of the features of dependent claims 2-6, 9, 11-14 are neither known from, nor rendered obvious by, the available prior art.